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23494 7590 12/31/2009

TEXAS INSTRUMENTS INCORPORATED
P O BOX 655474, M/S 3999
DALLAS, TX 75265

EXAMINER

SHENG, TOM V

ART UNIT

PAPER NUMBER

2629

DATE MAILED: 12/31/2009

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/717,235

11/18/2003

Yasushi Kubota

TI-35414

6910

TITLE OF INVENTION: INTEGRATED CIRCUIT FOR SCAN DRIVING

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	\$1510	\$300	\$0	\$1810	03/31/2010

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

A. If the status is the same, pay the TOTAL FEE(S) DUE shown above.

B. If the status above is to be removed, check box 5b on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above, or

If the SMALL ENTITY is shown as NO:

A. Pay TOTAL FEE(S) DUE shown above, or

B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check box 5a on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and 1/2 the ISSUE FEE shown above.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

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**Complete and send this form, together with applicable fee(s), to: Mail Mail Stop ISSUE FEE
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INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

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23494 7590 12/31/2009

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I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/717,235 11/18/2003 Yasushi Kubota TI-35414 6910

TITLE OF INVENTION: INTEGRATED CIRCUIT FOR SCAN DRIVING

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
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nonprovisional NO \$1510 \$300 \$0 \$1810 03/31/2010

EXAMINER	ART UNIT	CLASS-SUBCLASS
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SHENG, TOM V 2629 345-100000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

- ☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
- ☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list

- (1) the names of up to 3 registered patent attorneys or agents OR, alternatively, 1 _____
- (2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed. 2 _____
- 3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE (B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent) : ☐ Individual ☐ Corporation or other private group entity ☐ Government

4a. The following fee(s) are submitted:

- ☐ Issue Fee
- ☐ Publication Fee (No small entity discount permitted)
- ☐ Advance Order - # of Copies _____

4b. Payment of Fee(s); (Please first reapply any previously paid issue fee shown above)

- ☐ A check is enclosed.
- ☐ Payment by credit card. Form PTO-2038 is attached.
- ☐ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

5. Change in Entity Status (from status indicated above)

- ☐ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27. ☐ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

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Date _____

Typed or printed name _____

Registration No. _____

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

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10/717,235	11/18/2003	Yasushi Kubota	TI-35414	6910
23494	7590	12/31/2009	EXAMINER	
TEXAS INSTRUMENTS INCORPORATED P O BOX 655474, M/S 3999 DALLAS, TX 75265			SHENG, TOM V	
			ART UNIT	PAPER NUMBER
			2629	
DATE MAILED: 12/31/2009				

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b) (application filed on or after May 29, 2000)

The Patent Term Adjustment to date is 1536 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 1536 day(s).

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (<http://pair.uspto.gov>).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

Notice of Allowability	Application No.	Applicant(s)	
	10/717,235	KUBOTA ET AL.	
	Examiner	Art Unit	
	TOM V. SHENG	2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to BPAI Decision of 12/2/2009.
2. ☒ The allowed claim(s) is/are 1,3-10 and 12-15.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☒ All b) ☐ Some* c) ☐ None of the:
 1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).
 - * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|--|--|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892) | 5. <input type="checkbox"/> Notice of Informal Patent Application |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6. <input type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date _____. |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date _____ | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | 8. <input type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9. <input type="checkbox"/> Other _____. |

/Richard Hjerpe/
Supervisory Patent Examiner, Art Unit 2629

EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with attorney William Kempler on 12/18/09.

The application has been amended as follows:

For claim 1:

An integrated circuit for scan driving being used in sequentially selecting and driving scanning lines in a display, which has said plural scanning lines and plural signal lines arranged crossing each other in a matrix configuration, and which has a pixel arranged at each cross point; in this integrated circuit for scan driving, comprising:

a chip, having plural output pads arranged as a column in a first direction, plural drive circuits for driving said scanning lines to the active state through said output pads, respectively, and plural selection circuits for individually selecting said driver circuits in a line-sequential scanning cycle in an order corresponding to the order of said scanning lines;

the odd-numbered output pads, driver circuits and selection circuits corresponding to odd-numbered scanning lines are all arranged in a first region,

the even-numbered output pads, driver circuits and selection circuits corresponding to the even-numbered scanning lines being all arranged in a second

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region adjacent to said first region in said first direction;

said first region, in an order corresponding to the order of said odd- numbered scanning lines, said odd-numbered output pads, driver circuits and selection circuits being arranged as columns in said first direction, respectively, and, at the same time, said output pads, driver circuits and selection circuits corresponding to each of the scanning lines are arranged in the same row in the second direction nearly orthogonal to said first direction;

~~and~~, in said second region, in an order corresponding to the order of said even-numbered scanning lines, said even-numbered output pads, driver circuits and selection circuits are arranged as columns in said first direction, and, at the same time, said output pads, driver circuits and selection circuits corresponding to each of the scanning lines being arranged in the same row in said second direction[.];

said odd-numbered selection circuits are made of individual flip-flops that overall form the first shift register; the first shift data provided by the frame period is transferred sequentially to the latter-stage flip-flops in synchronization with the first transfer clock signal at a frequency half that of the line-sequential scanning cycle; by means of the output signals of the flip-flops with said first shift data latched in them, the corresponding driver circuits are selected;

said even-numbered selection circuits are made of individual flip-flops that overall form the second shift register; the second shift data provided by frame period is transferred sequentially to the latter-stage flip-flops in synchronization with the second transfer clock signal at a frequency half that of the line- sequential scanning cycle and in

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a phase opposite to that of said first transfer clock signal; and, by means of the output signals of the flip-flops with said second shift data latched in them, the corresponding driver circuits are selected.

For claim 2: Cancel claim.

For claim 3:

The integrated circuit for scan driving as in Claim [[2]]1 wherein said first and second shift registers allow bidirectional transfer of, respectively, said first and second shift data.

For claim 4:

An integrated circuit for scan driving being used in sequentially selecting and driving scanning lines in a display, which has said plural scanning lines and plural signal lines arranged crossing each other in a matrix configuration, and which has a pixel arranged at each cross point; in this integrated circuit for scan driving, comprising:

a chip, having plural output pads arranged as a column in a first direction, plural drive circuits for driving said scanning lines to the active state through said output pads, respectively, and plural selection circuits for individually selecting said driver circuits in a line-sequential scanning cycle in an order corresponding to the order of said scanning lines;

the odd-numbered output pads, driver circuits and selection circuits corresponding to odd-numbered scanning lines are all arranged in a first region,

the even-numbered output pads, driver circuits and selection circuits corresponding to the even-numbered scanning lines being all arranged in a second

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region adjacent to said first region in said first direction;

_____ said first region, in an order corresponding to the order of said odd- numbered scanning lines, said odd-numbered output pads, driver circuits and selection circuits being arranged as columns in said first direction, respectively, and, at the same time, said output pads, driver circuits and selection circuits corresponding to each of the scanning lines are arranged in the same row in the second direction nearly orthogonal to said first direction;

_____ in said second region, in an order corresponding to the order of said even- numbered scanning lines, said even-numbered output pads, driver circuits and selection circuits are arranged as columns in said first direction, and, at the same time, said output pads, driver circuits and selection circuits corresponding to each of the scanning lines being arranged in the same row in said second direction;

wherein said integrated circuit includes:

a transfer clock generator that divides the fundamental clock signal that defines the cycle of line-sequential scanning in half,

and a shift data generator that generates said first and second shift data in two consecutive cycles of said fundamental clock signal corresponding to the start pulse that indicates the timing of the start of a frame.

For claim 8:

A type of integrated circuit for scan driving for sequentially supplying scan drive signal to the scanning electrodes of a display device; comprising:

a first shift register, which has plural register circuits connected in series, and

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which sequentially transfers the first shift data corresponding to a first clock signal,

a first drive section, which has plural driver circuits corresponding to the plural register circuits of said first shift register, respectively, and which has said plural driver circuits output drive signals corresponding to said first shift data outputs from the plural register circuits of said first shift register, respectively,

a second shift register, which has plural register circuits connected in series, and which sequentially transfers the second shift data shifted in phase by half a period of a second clock signal with respect to said first shift data corresponding to the second clock signal with its phase deviated by 180° from said first clock signal,

and a second drive section, which has plural driver circuits corresponding to the plural register circuits of said second shift register, respectively, and which has said plural driver circuits output drive signals corresponding to said second shift data outputs from the plural register circuits of said second shift register, respectively;

said drive signals are output alternately from the various driver circuits of said first drive section and the various driver circuits of said second drive section, corresponding to said first or second shift data[.];

wherein said integrated circuit has a signal generator, to which the reference clock signal having a frequency double that of said first and second clock signals as well as a start pulse are input, and which generates said first and second clock signals and said first and second shift data on the base of said reference clock signal and said start pulse.

For claim 11: Cancel claim.

Please add below new claims.

Claim 14: The integrated circuit for scan driving as in Claim 4 wherein said first direction corresponds to the longitudinal direction of said chip, and said output pads are arranged as a column along one edge extending in the longitudinal direction of said chip.

Claim 15: The integrated circuit for scan driving described in Claim 14 wherein the input pads for input of the desired power source voltage or signal are arranged as a column along the other edge in the longitudinal direction of said chip.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to TOM V. SHENG whose telephone number is (571)272-7684. The examiner can normally be reached on 9:00am - 6:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Hjerpe can be reached on (571) 272-7691. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2629

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/T. V. S./
Examiner, Art Unit 2629

/Richard Hjerpe/
Supervisory Patent Examiner, Art Unit 2629